

NR 445 Technical Advisory Group Meeting 2
March 22, 2000 Notes
(UW Milwaukee, Greene Hall)

Attendance: Myron Hafele, Kohler Co.; David Kluz, Kohler Co.; John Multer, Kohler Co.; Jeffrey Schilling, MMSD; Todd Sandman, 3M; Susan Rosenberg, Madison Gas & Electric; Robert Heitzer; Chip Burns, Hillshire Farm & Kahn's; Jose L. Bucio, WI AFL-CIO; Dave Gardner, Briggs & Stratton; Cathy McConnell, Triad Engineering; Renee Lesjak Bashel, Commerce Small Business; Rudy Salcedo, City of MKE; John Hausbeck, Madison Public Health; Annabeth Reitter, Consolidated Papers, Inc.; Jim Beasom, Appleton Papers Inc.; Susan Mudd, CBE; Liz Wessel; Emma Czarapata, Clean Air Madison; Hank Handzel, PIW, WPC; Dave Boyd, Briggs & Stratton; Brian Mitchell, Wisconsin Cast Metals Assn.; Chris Magyar, City of Franklin; Bob Fassbender; Patricia Kandziora, UW System Administration; Bill Johnson, PIW; Linda Sturnot, Mining Impact Coalition of WI; RB Willder, WI Transportation Builders Assn.; Dan Daggett, DHFS; Jill Stevens, Alliant Energy; Howard Hofmeister, Bemis Co.; Thomas Stocksdaale, SC Johnson; Ed Wilusz, WI Paper Council; Pat Stevens, WM&C; Caryl Terrell, Sierra Club; Eric Uram, Sierra Club

Morning Session

I. WELCOME/INTRODUCTIONS/MEETING REVIEW

- A. Review/approval of Meeting 1 notes
 - i. There were no comments or changes to the Meeting 1 notes
- B. Describe Role of Facilitator
 - i. Darin Harris, the DNR meeting facilitator, was ill and unable to attend Meeting 2.
- C. Describe Public Participation Process for the TAG
 - i. Impact of NR 445 revisions will be widespread
 - ii. 2 prong approach
 - (a) formal TAG meetings with in depth discussion on specific issues
 - (b) non-Tag members are encouraged to come to meeting & work through TAG members and/or write comments or call DNR staff directly
 - iii. Listening Sessions – will be scheduled to provide a less formal setting where all issues and concerns about air toxics in the State of Wisconsin may be raised.
 - iv. *Qu.* - Caryl Terrell of the Sierra Club asked to discuss the public involvement process. She stated that many people are unable to make meetings and would like to voice concerns. She asked if there is an obligation or commitment by DNR staff to attend listening sessions. She also asked if a list of dates will be provided to get the word out so people can make arrangements.
A.- C. Garber replied positively to both questions.
 - v. The first listening meeting was planned for May from 5-7 p.m. but the meeting data and location has changed, as noted below.
- D. Review of Meeting Agenda
 - i. An attempt to reschedule the April 26 meeting in Oshkosh to Monday May, 1 was made. However, this was unsuccessful. A final decision at the end of the meeting was made to move the third meeting to Madison on April 27.
 - ii. *Q* - C. Terrell asked if there will be just a presentation or discussion at the Meeting 3. She said that these are big issues and a number of environmental groups are not available.
A - C. Garber said that Meeting 2 is designed to hear everyone's position & thoughts on the decision criteria for listing chemicals and for setting de minimis levels in NR 445. Prior to Meeting 3, a revised proposal will be sent for review and will then be presented in Meeting 3 to allow for additional feedback.

- iii. Q- Ed Wilusz of the WI Paper Council asked when the CAA 112 interaction with NR 445 will be discussed.
A - C. Garber stated that the issue will probably be discussed at the 4th meeting.
- iv. Q – Patrick Stevens of WI Manufacturers and Commerce asked if the interaction between federal laws could be brought up today (Meeting 2).
E. Wilusz summarized by saying that the goal is to focus on the key issues but not to prohibit other issues.
A – C. Garber agreed. She followed this by saying that the decision rules and chemical listing would be discussed today. There will be a discussion of the inventory at a separate time. In addition, some staff presentations will be made to provide additional information in response to questions from the previous meeting. Finally, she asked if anyone would like to add something to the agenda for the current meeting. No one made any suggestions for additions to the current meeting agenda.

II. OVERVIEW OF DISCUSSION OF NR 445 DECISION CRITERIA

Purpose –To describe the NR 445 Decision Criteria process.

- A. C. Garber reviewed the explanation of Criteria as “Filters” (Item 4A from Meeting 1 Notes)
 - i. Method uses a filter diagram to describe how de minimis values will be derived. Criteria are used to screen chemicals and classes of chemicals.
 - ii. Certain criteria will not be revisited e.g.,
 - a. Non-carcinogens will use TLV listed by ACGIH (the TLV book is available for purchase; contact Jeff Myers for more information)
 - b. Carcinogens must be listed on IARC and NTP lists
 - c. Other issues are open for discussion.
 - iii. C. Garber stated that the discussion will be organized by following Attachments 1 & 2 in sequential order.
 - iv. Comments on issues not up for discussion, but open for comment, will be included in the meeting notes and will be included in the green sheet package sent to the NRB for review.

III. DISCUSSION OF DECISION RULES ON LISTING CHEMICALS (ISSUES 1 THROUGH 8 ON ATTACHMENT 1)

Purpose – Per charge to TAG from the Bureau Director, to provide feedback on the draft decision criteria on NR 445 presented by DNR during the February meeting.

- A. ***Issue # 1 – Should vapors with TLVs greater than 99 ppm (parts per million) be listed in NR 445 or not?***
 - i. Current proposal has no cut off; suggests that they all be listed.
 - ii. In the current NR 445 rule, most vapors with TLVs > 99 ppm are not listed.
 - iii. Existing regulations cover PM₁₀ and TSP already beyond NR 445
 - iv. The question was raised whether current regulations govern VOCs properly?
 - v. See “Proposed Table 1 Chemicals with TLVs > 99 ppm (17 chemicals)”
- B. ***Background Information: “Existing regulations governing vapors”***
-Bob Eckdale, DNR Air Management Engineer
 (handout provided at meeting)
 - a. VOC Definition – “Volatile organic compound” or “VOC” means any organic compound, which participates in atmospheric photochemical reactions. This includes

- any such organic compound other than the following compounds, which have been determined to have negligible photochemical reactivity (see page 2 of hand out)
- i. All organic compounds are considered to be reactive unless specific scientific evidence indicates otherwise, and it is specifically excluded.
 - ii. VOCs are precursors to ozone formation and the VOC regulations are designed to help meet the ozone standard, not as air toxics.
 - iii. Those highlighted in light gray on the handout are not VOCs
 - iv. MEK is currently regulated as a VOC in Wisconsin but EPA is in the process of reviewing a petition to add it to the list of excluded compounds.
 - v. VOC regulations are not always a backdrop for NR 445.
- b. Page 3 of the vapor handout describes the various chapters (NR 419 – NR 424) that cover organic compounds and page 4 describes the organization of Chapters NR 419 to NR 424.
- c. Page 5 describes the Applicability Criteria including:
- i. Geographic: some apply statewide, some in the ozone non-attainment area and some in a 22 county area.
 - ii. Source Size: Size is used as a criterion in a variety of ways including throughput, capacity and emissions.
 - iii. Vapor Pressure: In some cases, control requirements only apply for compounds having a vapor pressure above a certain value.
 - iv. These applicability criteria were described as a “real mixed bag” of where VOC regulations apply
 - v. Applicability criteria are often used in conjunction with one another’ they usually do not apply alone.
- d. Page 6 describes Emissions Limits
- i. Control equipment - Energy intensive devices (i.e., incinerators) may be shut off during the non-ozone season (October to April). This does not control HAPs when the equipment is off.
 - ii. Operational or equipment requirements. Housekeeping practices
 - iii. VOC content restrictions
 - iv. Regulations are usually rate-based and as a result, there is no restriction on total amounts of materials used. This provides no HAP (Hazardous Air Pollutant) safeguard regarding the mass of HAPs emitted, which is a concern from an ambient air concentration perspective. For example, some limits are written in pounds/gallon material basis rather than tons per year.
- e. Conclusion: the VOC regulations do not necessarily serve as a replacement for NR 445 and therefore as a rationale for excluding chemicals with TLVs > 99ppm. The Department, however, would be receptive to discussing any specific situations where it can be shown that VOC rules could serve as a reliable substitute for NR 445. This is different than particulates with TLVs $\geq 10 \text{ mg/m}^3$, which are currently regulated to a more stringent level through other regulations.

C. Open Discussion of Items 2,3 and 4

- Dave Boyd of Briggs & Stratton, Inc. stated that for 17 compounds with a TLV > 99 ppm, a facility would have to emit more than 100 ton per year (TPY). Such large sources are subject

to the VOC requirements. He argues that a facility would first be regulated by another chapter.

- T. Stocksdale of S.C. Johnson said the problem is that allowable permit level limits are ridiculously high. He made the point that if one puts the stack at 25 feet – rather than 11 feet – a facility can put out a lot and not pull the trigger. He originally said the 100-ppm level was set because a facility cannot put out that much – it is bordering on absurd to regulate at emission levels that you will never see in reality. He gave an example of 1-1-1 trichloroethane being caught by another rule before reaching the TLV.
- *Qu.* - Cathy McConnell of Triad Engineering stated that a 100-ton source may be exempt under Ch. NR 422 but will fall under Ch. NR 424.
- *Ans.* - Bob Eckdale of the WDNR replied to C. McConnell stating that it may fall under Ch. NR 424 but the level of control is set on a case-by-case basis so is uncertain.
- *Qu.* - Rudy Salcedo (Environmental Scientist for the City of Milwaukee) asked if the real target is ozone and a VOC's capacity to participate in a photochemical reaction. The response to both questions was yes.
- *Qu.* - Patricia Kandziora (University of Wisconsin System Administration) asked about degreasing and other treatments, and how a process line is defined.
- *Ans.* - Bob Eckdale said the definition of a process line is those unit operations that function simultaneously or in sequence in order to manufacture a product. He gave the example that industrial solvent rag cleaning is not regulated under Ch. NR 424 because it is a service, not a product.
- T. Stocksdale remarked that degreasing has its own special rules.
- *Qu.* - C. McConnell asked what the rationale was to add the 17 proposed compounds to the list.
- *Ans.* - C. Garber responded that these 17 chemicals are being discussed here because a TLV has been established for them since NR 445 was promulgated or their TLV has changed since NR 445 was promulgated and the new or revised TLV is greater than 99 ppm. Most HAPS with TLVs greater than 99 ppm were not listed in the original NR 445 and we are asking whether this policy should be continued as we revise NR 445.
- *Ans.* - C. Garber replied that some chemicals with TLVs over 100 are listed in the current NR 445
- T. Stocksdale stated that some members of the original Task Force were concerned about 2 or 3 compounds with TLVs greater than 100. The 100 level is so large that small companies would not exceed the threshold and in the spirit of compromise the large companies agreed to adding certain compounds which had TLVs of 100 ppm or greater.
- *Qu.* - Howard Hofmeister (Bemis Co.) asked if we were adding these compounds just because the TLV has changed.
- *Ans.* - C. Garber said that the current proposal is to include those compounds that have had their TLVs changed, revised or added to the list, but that this remains open for discussion.
- *Qu.* - Tom Ravn (Serigraph Inc.) asked whether R22 or HCFC be emitted as a process or as a source?
- *Ans.* - C. Garber said that it is understood that the two compounds cannot be manufactured any longer.
- Tom Ravn said that this seems to be redundant.
- John Hausbeck (Madison Public Health) made an observation that it appears that there is not a health-based issue rather an environmental issue. He said this is not necessarily wrong, but he assumes that the HAP rule is to protect public health. He said that the process could be streamlined by focusing on chemicals that affect public health. For the HAP rule, he believes that the focus should be on human health hazards.
- *Qu.* - Pat Stevens (WM&C) had a few general questions about decision rules.

- He said there is a problem with the decision rules. There is no focus on public health. He suggested that the existing statutes and rules should be justified as having a public health concern. He stated that a catchall category may be needed that addresses chemicals with actual impacts in Wisconsin.
- P. Stevens would also like that the interplay between the Federal Air Toxics Program and the State's program be addressed. He remarked that either the federal program could be considered and the state program is not needed or that the federal program be ignored entirely. He gave an example by asking what happens when a chemical is covered under the federal MACT (maximum available control technology) standard and the state has a smaller source subject to LAER (lowest achievable emission rate) while a larger source is subject to MACT and not LAER.
- Other considerations that are missing according to P. Stevens include
 - How many new sources add to permitting?
 - What is the impact of the rule change?
 - Compliance issues – how would one test for compliance with a silica standard?
 - He gave another example of radon being a home issue and not an ambient air issue
- *Ans.* - C. Garber replied that the interplay between federal air toxic rules and state rules would be discussed in a future meeting. She suggested that it be discussed at the next meeting. She also stated that the TLV issue was raised so that all parties could be heard including industry, public health representatives, environmental groups, etc.... She recapped the situation by restating the following questions.
 - Should chemicals with high TLVs be listed or not?
 - Is this a public health concern?
 - Or should we look at an individual emitter's throughput and require environmental management systems?
- *Qu.* - P. Kandziora asked of all the TLVs that recently changed, have all of the values gone up or down?
- *Ans.* – Jeff Myers (WDNR) replied that most went down, but some have gone up. He would need to look at this more closely to answer the question in a more quantitative manner.
- D. Boyd commented that what he is looking for is practicality. There are other repercussions, e.g., will anyone violate the regulation? His answer was no. It is another page that is not needed. Before reaching the 100-ppm level, a facility will be caught by other rule like NR 438 or Title V. This has a practical consideration as to how the change would affect permits at the DNR. Human health and environmental effects are to be considered and no one will report chemicals in this list. He asked, "What are we really trying to do?" Are we listing things just to list them or looking at those with real impacts on the environment?
- S. Mudd (Citizens for a Better Environment) said she was "very troubled by the conversation." Her presumption is that NR 445 is based on the TLV that is based on human health concerns. She is also troubled if the list is truly absurd – she suggested not adding a chemical to the list if no one will ever emit it in Wisconsin. She then commented on Pat Steven's question about public health. S. Mudd would like that impacts of interactions between chemicals out of different stacks or the same stack be considered for their cumulative health impacts. She is also troubled by the presumption that the interactions of chemicals would not affect public health. She also suggested that the Great Lakes chemicals need to be considered too.
- D. Boyd, commenting on vapors, requested that vapors over 100 ppm not be used as a selection criteria. He suggests that the removal of this exception will not help the state or affect industry.
- T. Stocksdales remarked that it is not true that companies wouldn't be regulated. They would still be impacted by NR 438 and will have to report at greater than 6000 pounds per year.

- H. Hofmeister stated that companies would still get entangled in the regulatory process.
- T. Ravn said that it is primarily a record keeping issue.
- C. Garber suggested that there may be value in record keeping.
- T. Stocksdale commented that adding hundreds of new compounds to NR 438 would be a burden for DNR staff. He questions what the DNR staff has done with Toxic Release Inventory (TRI) information.
- L. Wessel (Environmental Policy Consultant) said that this statement is a one-sided perception.
- R. Salcedo remarked that the original committee framed NR 445 with “an eye toward prevention” of such problems. He asked if we are throwing out this philosophy in this discussion.
- P. Stevens commented that we must recognize that we are not in the same place today as we were in the past. Wisconsin has one of the most restrictive set of air toxic rules in the US. Previously there was no federal program. The state program is much more extensive than the federal program. He questions the need to expand the program if it is already so strict.
- R. Salcedo suggested that if a chemical is suspect that it should be regulated since we should keep an eye on prevention.
- T. Stocksdale agreed with P. Stevens’s comment.
- L. Wessel said she objects to the need of the DNR to demonstrate a public health need. She believes it should be the industry’s burden of proof to show health impacts.
- H. Hofmeister questioned whether it makes sense to add a chemical just because the TLV changed.
- C. McConnell suggested that eventually all TLVs will change and a large number of chemicals will need to be listed. This has a potential to be a significant burden with no return.
- D. Boyd suggested that the group should talk about Tables 1, 2 and 4; the three lists should be merged. He said of a common listing of 361 compounds only 47 have had a change in their TLV. i.e., approximately 310 have had no change. He questions the practicality of changing NR 445 de minimis levels. Why should we look at touching chemicals where the TLV has not changed. He attributes some changes to a rounding convention and used ammonia as an example. D. Boyd stated that the truth is that the TLV didn’t change.
- C. Garber said that this issue would be discussed later on today during the air dispersion modeling presentation.
- B. Heitzer (concerned citizen) stated that the down side to listing minimally toxic materials is that this may drive companies to use replacements that are more toxic.
- J. Hausbeck asked how the original > 99 ppm level was set.
- T. Stocksdale said that chemicals emitted at more than 100 TPY are covered by some other rule.
- J. Hausbeck said that much of the coverage is not complete during the non-ozone season. Other rules do not necessarily cover TLVs.
- T. Ravn that it is possible to turn the control system off, but that many facilities leave it on. New Source Review (NSR) may request to keep it on at all times.
- H. Hofmeister said that Bob Eckdale only discussed RACT regulations and that BACT and NSPS should also be discussed.
- A. Stewart summarized the situation by stating that existing regulations do not provide a backstop for all sources all the time.
- A. Stewart stated that the DNR can provide inventory information it has on these sources. If the sources are listed, then it is possible to talk about what to do for compliance. A lot is still

open and there is almost no emissions inventory information for compounds that are not listed in NR 438.

- D. Daggett asked to have a couple of examples of inventory data presented at a future meeting.
- C. Garber summarized the three points she was hearing regarding the issue of listing chemicals whose TLV's were > 99 ppm.
 - 1 If there is no current or anticipated health concern, do not list.
 - 2 A public health impact analysis should be included.
 - 3 A look at inventory information would be appreciated.
- L. Wessel suggested that sometimes health implications are secondary e.g., ozone.
- C. Garber replied that chemicals are regulated for ozone.
- L. Wessel said that synergistic effects exist.
- R. Salcedo asked if we are considering at direct impacts or secondary/indirect impacts?
- C. Garber replied that NR 445 primarily considers primary impacts. VOCs are regulated for secondary formation.
- M. Hafele (Kohler Co.) suggested that 100 ppm was chosen for health matters. He stated that it seemed random to base an addition to the NR 438 list on the fact that the TLV changed. He gave the example that if a TLV changed from 1000 ppm to 800 ppm, that it too would be included on the list.
- C. Garber suggested that some members of the original task force had a concern about a few chemicals over 100 ppm. If there is a reason for us to be concerned about emissions from any of the 17 chemicals under discussion, we should consider adding the chemicals to NR 445t. If there is no reason to be concerned (e.g. we do not have sources emitting large amounts and do not expect to based on the typical use of these chemicals), it may not be necessary to add the 17 to the list. There is still room to consider this.
- D. Gardner (Briggs & Stratton) asked if companies would conceivably have to permit small combination sources under BACT.
- A. Stewart said that the DNR would first like to make sure of the present relationship and then consider what the impact would be. This conversation is to help the draft proposal and is not closed.
- C. Garber suggested moving on to items 2 & 3 of Attachment 1, which address simple asphyxiants and particulates.

ITEM 2 (Simple asphyxiants)

- S. Mudd, addressing Item 2, asked why the current proposal changed to no exception for vapors from the May proposal of vapors with TLVs >99 ppm.
- J. Myers said that asphyxiants are not toxic per se, but only at 1000s of ppm are they toxic due to a large quantity. This will not occur in the ambient air.
- S. Mudd asked if there were indoor air standards to cover this.
- J. Myers said that, to his knowledge, OSHA standards take care of this in the work place.
- A. Reitter (Consolidated Paper) stated that the intent is not to deal with indoor air quality.

ITEM 3 (Particulate)

- J. Hausbeck asked if there is a difference between PM₁₀ and PM_{2.5}? Once the PM_{2.5} standard were enforced, would this make a difference in TLV chemicals? (PM_x = Particulate Matter of a size x given in microns)
- The general response was that it would be more restrictive, so fewer chemicals would be listed.

- J. Myers said that Wisconsin currently has Total Suspended Particulate and PM₁₀ standards in force.
- C. McConnell asked J. Myers if there were any chemicals listed for odor reasons.
- J. Myers said that to his knowledge, there are not, but a look at the TLV book would clarify this.
- C. McConnell said that if there are chemicals listed for odor reasons that those be another possible exception.
- T. Stocksdale remarked that a nuisance would have a high TLV.
- C. McConnell replied that some chemicals have very low odor thresholds.
- J. Hausbeck stated that something with a low odor threshold should not be considered, and that odor regulations do not work well.
- H. Hofmeister said that there is a need to look at risk factors and other issues.
- C. Garber said that if someone identifies a chemical listed due to odors to make the group aware of it.

D. Comments from TAG members on Items 1, 5, 7, & 8

- C. Garber remarked that comments will be noted and sent to the Natural Resources Board.
- P. Stevens, commenting on Item 1, said that a lot of TLVs have not changed but the rounding factors have; he asked if the DNR agrees with this statement.
- C. Garber replied that this is for setting de minimis levels not for listing purposes, and that de minimis levels will be discussed later.
- J. Hausbeck asked if the rule could reference the TLV book.
- J. Myers responded that the State of Wisconsin requires a document that one may refer to under an incorporation by reference requirement. He suggested that the DNR will probably rely on the 2000 ACGIH list or the DNR will use the most recent version available up to the public hearing.
- E. Uram, addressing Items 7 & 8, questioned where PBT chemicals would be listed if not in NR 445. Where will chemicals causing problems and having synergistic effects be listed? Where does the DNR feel this will be done and when?
- C. Terrell commented that at the time the regulation was being developed in 1985 experience with NTP and IARC was limited so a compromise was to list chemicals on *both* lists. She would like to see this separated to *or*. She stated that research is expensive and we should not expect both organizations to list. C. Terrell said that we should use the best available information and not be locked into the compromise of 1985.
- H. Hofmeister asked if anybody had an idea of which chemicals would fall into the group of chemicals not listed by both i.e., chemicals listed on one but not the other.
- C. Terrell said that this would be based on “pure common sense.”
- T. Stocksdale provided some background by stating that the studies done by NTP and IARC were not always the best and were sometimes poor or questionable. The 1985 Task Force could not be certain who had better studies. He commented that Marty Kanarek of the University of Wisconsin – Madison would add greatly to this conversation. T. Stocksdale noted that even pharmaceuticals were added to the list, which he believes “is laughable”.
- C. Terrell asked to put the following point on the record. There was a need at the time (i.e., 1985) to have a level of comfort with what should be in the rule, but the level cannot always be based on old considerations. This point should be reconsidered at this time.

Afternoon Session

IV. DECISION RULES FOR SETTING NR 445 DE MINIMIS LEVELS (ISSUES 9 THROUGH 13 ON ATTACHMENT 2)

I. Background Information: “Establishing de minimis levels using air dispersion modeling”

- John Roth, DNR Atmospheric Dispersion Modeler

J. Discussion of Items 9 & 11 on Attachment 2 (de minimis levels)

- J. Roth briefly discussed the assumptions made in atmospheric modeling and provided a handout.
- He defined three types of dispersion (molecular, turbulent eddy and large scale) as well as averaging periods (one hour and 24 hour). He also discussed atmospheric dispersion modeling which uses multiple receptors and five years of data. J. Roth ran through a work sheet discussing how to calculate de minimis emissions rates. He then described the two different types of sources {tall (> 25 ft) and short stacks (< 25ft)}
- *Qu.* - R. Fassbender (Hough, Fassbender and Osburn) asked if one doubles the stack height if the concentration doubles proportionately?
- *Ans.* – No. Originally the model did not account for buildings. The newer model includes buildings, which increase concentration. J. Roth also stated that the exhaust gas flow rate and stack height are very important.
- T. Stocksdales stated that the use of a short stack is an unfair comparison. He asked if it would not be more appropriate to use the worst day.
- J. Roth replied that for the de minimis level the one-hour average uses the single worst hour during a day. The 24-hour average uses the worst day and that annual uses the worst year.
- J. Beasom asked if 2.4% of the TLV over a 24-hour period was compared against the worst case day.
- *Qu.* - T. Stocksdales asked if the worst case day was based on consecutive 24 hours.
- *Ans* – J. Roth said not necessarily. It uses the worst 24-hour day.
- H. Hofmeister stated that when he asked for this dispersion modeling presentation at the first meeting, he had in mind the parameters used to go from the TLV to ambient air concentrations. E.g., What is the stack height (short v. tall)?
- J. Roth stated that 1983 data from Green Bay was originally used to set the de minimis. The property line setting for a short stack was 14 meters from the stack to the property line and for a tall stack, it was 35 meters from the stack to the property line.
- D. Boyd stated that most of this information is summarized in the memorandum dated April 5, 1993 from John Roth to Jeff Myers with the subject “NR 445 Toxic Modeling Analysis.” D. Boyd said that the only difference was that the RAM model was used then and now the ISC model is used.
- J. Roth commented that the RAM model evolved into the ISC model, but included downwash effects from buildings. The resolution of the receptors was increased due to faster computers.
- E. Uram, referring to J. Roth’s de minimis worksheet, asked if it is possible to include two facilities together in the model.
- J. Roth said that it depends on the distance from one source to the other and the rate of emissions. It is possible to model two facilities for NR 445 purposes, if they are in the same area.
- T. Ravn questioned the default emission rate value of 0.1 meters per second. He noted that a stack could be obstructed causing an increase in concentration or the baffles could be removed causing a decrease.
- When a stack is obstructed by a rain hat or is discharging horizontally or downward, we set the vertical velocity in the model of 0.1 m/s for that source. This would give higher concentrations than if the stack were vertical and unobstructed. Based upon experience, there

are several alternatives to rain hats that do not interfere with airflow. Flaps that open when the process is on or collars around the stacks jut to name a few. The current de minimis rates are based upon unobstructed, vertical discharge.

- E. Wilusz recapped the conversation by saying that the basic change is the addition of buildings and the ability to account for downwash.
- J. Roth said that the modeling establishes the ratio of emission rate to ambient air concentration. The TLV is the target concentrations and is not affected by the modeling. So, for the compounds that had no TLV change, the lower de minimis is due entirely to modeling.
- *Qu.* - E. Wilusz asked how many chemicals had changed due solely to the modeling change.
- *Ans.* - The response was quite a few, but we don't have an exact number.
- *Qu.* - E. Uram asked about the velocity of emission rates.
- *Ans.* - J. Roth that exit velocities vary depending on the source type and that emissions rates are measured in meters per second.
- *Qu.* - M. Hafele asked if it is possible to model particulate matter as well as gas.
- *Ans.* - J. Roth said that it is and that gravity must be included to account for the particulate matter.
- *Qu.* - R. Fassbender asked to what degree would concentrations be lower.
- *Ans.* - If this refers to gravitational settling, concentrations of particulate HAPs are higher when gravity is assumed. In the one case I can think of, the increase is only a few percent.
- D. Boyd gave an example of a situation where a de minimis level was previously set 24 ppm and is still set at 24 ppm, but that there is a 17 % reduction in the de minimis when building down wash is included. The 1-hour standard is still 1 hour, but the de minimis went up by a factor of 2. This is unexplainable.
- *Ans.* - This is explainable due to the fact that concentrations including down wash are basically double those to do not consider buildings. If the concentration doubles, the emission rate must be reduced by one-half to reach the same concentrations.
- C. Garber suggested that a technical group for the modeling issue be formed.
- T. Stocksdales asked what the de minimis will change by. He commented that it will make a few people look at the regulation much more carefully, and he does not know how important it is but due to down wash and a finer grid, the de minimis has changed.
- D. Boyd stated that the net result is not significant. His point is that for those compounds where the TLV did not change, the de minimis values should be kept the same. He suggested that they not be touched, or the wheel will have to be reinvented. The permitting affect would be huge. The amount of change of the de minimis is so minor that the effect will be huge. Do not change those where the TLV has not changed. Stay with NR 445 as it presently is.
- J. Beasom said that the tables (1,2, &4) act as gatekeepers, and that those levels act as a basic rough-cut.
- C. Garber stated that the DNR uses this newer dispersion model routinely in permitting and to make other decisions. Having de minimis values that are consistent with the modeling approach we use for permitting and compliance with the standards in NR 445 is a distinct advantage.
- *Qu.* - J. Beasom asked if anybody had heard of anyone that had found ambient concentrations doing modeling that were worse than table values. Why not keep a rough screen? Why not just stick with that?
- *Ans.* - J. Roth said that virtually every stack has a building associated with it so down wash should be included. He said that the screen should be set so all facilities below that level are truly fine. He also stated that he had just recently stumbled across a case where the de minimis rate does not satisfy the ambient air concentrations for a pollutant when modeled with down wash using ISC.

- J. Roth, in the meantime, calculated the change in concentration for short stacks
Before 473.8 and After 975.2 for one hour
Before 88.5 and after 328.2 for a 24 hour period
Note: These are concentrations, not de minimis emission rates.
- C. Terrell asked J. Roth to comment on when calculations would have to be redone.
- J. Roth said that he believed that these calculations would only have to be done at the permitting point, but that he was not certain.
- A. Stewart said that D. Boyd is correct and that small sources for many facilities may now have to be considered.
- D. Boyd maintained that 5 years ago all companies had to get a permit. Now only 1/3 of permits had been issued by the WDNR. Many companies are still waiting. The costs are great to prepare a permit application. For Title V permits, all NR 407 levels had to be calculated, and all of these calculations would have to be redone if the de minimis levels were changed. The bottom line is that a total reanalysis for a compound where the TLV did not change and the de minimis did would create a great burden for a small return in environmental improvement in Wisconsin.
- C. Terrell said that the difference is that modeling better replicates the real world because buildings do affect conditions.
- D. Boyd said that he agrees with C. Terrell, but built within the model is a stack size and height that make the modeling impacts fairly conservative.
- J. Roth suggested an option for discussion may be to add additional tables.
- D. Boyd said that most of the stacks at Briggs and Stratton are 30 feet so 25 feet is good for his industry, but is not sufficient for industries like the paper industry.
- J. Roth continued and asked if people thought it would be more difficult to go through the development of more tables with different generic stack parameters to have more choices for de minimis emission rate purposes.
- D. Boyd said that speaking for his industry, he wouldn't have a problem.
- T. Stocksdale said that what we all have to understand is that the de minimis is the set condition and is not the best in the world but we have it. The issue is not to change the de minimis level on the basis of a very conservative estimate because all calculation would have to be redone.
- A. Stewart asked if the issue is the *change* or the *timing*. Is it the permit revision or is it doing the calculations at all?
- J. Roth remarked that technology is not the same as it used to be. Computer systems have changed dramatically. The modeling was done 15 years ago. Every company changes their computer systems every few years. He suggested that a natural roll over process may be needed.
- E. Wilusz said that he would like to have someone on the modeling study group.
- C. Garber asked for interested persons to sign up on a sheet that would be passed around.

K. Background Information: "Review and Analysis of Alternatives for Setting De Minimis Levels for Table 3 Compounds"

- Dan Daggett, DHFS Toxicologist

L. Discussion of Item 10 - setting de minimis values for carcinogens (Attachment 2)

M. Comments on Items 12 & 13 (Attachment 2)

- Dan Daggett discussed the Issue Paper provided at Meeting 1 that proposes two alternatives for setting de minimis levels for Table 3 compounds (carcinogens): (1) establishing risk levels and (2) establishing potency bins.

- D. Daggett defined some terms
 - Potency Number = (Risk/Concentration) this is the strength of the carcinogen
 - Risk Level = Potency * Concentration
 - He used an example of Methylene chloride
 - The inverse of the Risk Level is the more common way of expressing a risk i.e., 1 in x, where x is a population size
- Under option 1 the risk level would be locked in at 10^{-6} (one in a million) or 10^{-5} (one in one hundred thousand) and then a potency value is used to come up with the de minimis.
- Under option 2 chemicals would be combined in bins based on potency and emission rates (e.g. low potency = 100 pound/ year; medium potency = 10 pounds per year and high risk = 1 pound per year) to get a concentration. Potency values range in eight orders of magnitude and are divided by using the natural breaks statistical method.
- *Qu.* - T. Stocksdales asked what the modeling parameters were.
- *Ans.* - J. Myers responded said that a small stack (< 25 feet) was used for modeling the bin approach and the approach is exceptionally conservative.
- C. Garber asked of the TAG which approach they prefer. Risk or binning? She said that the three bins (1, 10 and 100) do not need to be kept. There is flexibility in the binning.
- *Qu.* - D. Boyd asked about an example of benzene. He asked if benzene has a de minimis of 300 pounds per year, which alternative mirrors what was done 10 years ago.
- *Ans.* - D. Daggett stated that the current method has bins of 25 and 250. He also pointed out that known carcinogens are not necessarily more potent than suspected carcinogens. In addition, potency values may change over time based on reevaluation. He concluded that the risk at the de minimis is much different than the actual risk.
- T. Stocksdales asked if this holds true for small stacks. He said that emission rates are held constant, people would be exposed to very high levels of carcinogens, but for his company with a huge property, this may not hold true.
- C. Garber asked what the sense of the group was. She summed up that the issue may not be the level but the method.
- J. Hausbeck said that it makes more sense to set a risk level with which everyone is comfortable.
- D. Boyd summarized his ideas by saying the we essentially have a binning approach now. If a facility exceeds a level, they must put on a control automatically. He asked what level people are comfortable with for health reasons. If a facility exceeds the de minimis, the impact can be modeled.
- A. Stewart said that we are talking about who will be reviewed and what the standard is. Table 3 defines the level at which a company must be reviewed and describes which control is appropriate for review.
- D. Boyd said that these are very small numbers and there must be an acceptable impact we can live with. We should not have to put in controls just because we exceed a level.
- T. Ravn said that he did not see any natural breaks in the graph Dan Daggett displayed.
- C. Garber asked if there were any more suggestions.
- D. Boyd said that there are hard lines drawn in NR 445. If a company is above the de minimis level in Table 3A, LAER must be used and if a company is above the de minimis level in Table 3B, BACT must be used. This is regardless of whether the modeling impact is more than 10^{-6} e.g., 10^{-7} .
- C. Garber asked if we should spend more time looking at the binning approach.
- H. Handzel (WPC & PIW) asked why the approach should be changed at all. He is troubled by the fact that a change is viewed as needed.

- C. Garber said that the rationale is that with the current approach (25 and 250 pounds per year) there is no consideration for toxicity (potency for a chemical). This does not consider that Table 3B chemicals can be more toxic than Table 3A chemicals. The suggested approach looks at potency and impact on public health.
- A. Stewart restated that the proposal is not to change emission standards but to consider changing the screen for de minimis levels used.
- A. Reitter said that she is concerned with the de minimis levels. The numbers are so small that technology may not be available to quantify at the level of 1 pound per year. How should non-detects be quantified? She said that some non-detects may be above the de minimis level.
- A. Stewart said that the WDNR staff recognizes that there are areas where technical guidance would be needed.
- J Myers stated that all issues will come up for discussion or comments again and how issues will be dealt with will be discussed. It is easier to have a defined set of issues to discuss. It is always possible to go back and review the issues.
- T. Stocksdales said that he would like to caution the committee that the original focus group knew what they were talking about in 1985 due to their technical expertise. He said that potency existed then but was not nearly as relevant. The 25 and 250 pounds per year levels were set deliberately based on what three toxicologists had to say.
- C. Terrell said that it seems that for purposes of clarity to the public and consistency with other policies, the 10^{-6} risk level makes the most sense. She said she would like to have a default number related to potency.
- J. Beasom said that he agrees with D. Boyd about the current set up and the proposed new binning approach. He would like to see a set-up similar to Table 1,2 & 4 to first see if a line is crossed then real world data may be used to see what the risk level is. Then it would be possible to see if a facility belongs in a group. He believes this method would solve the problem.
- C. Garber said that it seems that we are hearing support to go with the risk-based approach rather than the binning approach. The 10^{-6} proposal seems to be the level most talked about.
- E. Wilusz said that the level of risk would need to be discussed in more detail in the future.
- C. Garber said that future staff efforts would be put on the risk proposal rather than the binning.
- R. Fassbender asked if the record would reflect a consensus on the risk basis proposal.
- C. Garber said, "No." This would be recorded as the sense of the group regarding setting a direction for where we should be devoting time and resources. We will get back to this issue again.

V. PRESENTATION OF PRELIMINARY ANALYSIS OF IMPACTS ON INDUSTRY

N. Purpose – To share with TAG members the initial findings regarding the impacts of NR 445 revisions on industry and to identify areas needing more in-depth analysis

- Presentation: Initial analysis of impacts of NR 445 on industry by
Andy Stewart, DNR Air Management Engineer
Clarification/questions by TAG members
- A. Stewart provided a handout to aid the discussion.
- A. Stewart provided two tables with the total HAPs reported to AEI (Air Emissions Inventory) in 1997 and 1998. This includes a significant amount of mass emissions, and the number of sources reporting emissions of a chemical. Each reported source was counted not the number of facilities.
- 6 of 22 Table 3 HAPs are reported as being emitted in Wisconsin.

- A. Stewart said that a trend analysis between the years 1997 and 1998 should not be performed even though it appears that there is an increase. The numbers must be investigated in more depth. For example, 80% of the HAPs emissions are from 20% of the sources.
- A. Stewart searched for emissions data for chemicals that may be transferred from Table 3B to Table 3A. He said there are some chemicals for which no emissions were reported. He also considered chemicals previously regarded as acute compounds but are now listed as carcinogenic (e.g., methylene chloride)
- A. Stewart then discussed how the binning approach works and who would have to apply controls. He used benzene as an example.
- It was asked if inventory data exist for other chemicals. A. Stewart said yes.
- C. Terrell asked how many of the numbers in the inventory are based on actual emissions.
- A. Stewart said that they are all based on actual emissions as reported to DNR by the source.
- A. Stewart then referred to the Table with TLVS > 99 ppm (17 Chemicals) and used Methyl Ethyl Ketone (MEK) as an example. 1.5 million pounds of MEK is reported in Wisconsin and 33% of that is from one facility. This facility must meet RACT. This should give a sense of how proposals may impact companies and where different chemicals fall out.
- C. Garber asked if there were any requests for areas of further analysis or if more information was needed for the next meeting.
- T. Stocksdale asked what this analysis tells us. What good is this?
- The response was that it is to help provide information to discuss different proposals. This feeds into the emissions inventory and fees. You can see mass emissions and the number of affected sources. It depends on what one is looking for.
- C. Garber said that it tells us what number of facilities is affected and which chemicals may affect what industries. Therefore, it helps to identify affected industries.
- T. Stocksdale said that it deals basically with regulatory issues. He asked if a comparison of the Toxic Release Inventory (TRI) could be performed with 439 reports for benzene or another chemical.
- A. Stewart said that they generally find that less is reported for the air portion of the TRI than for 438.
- C. Terrell asked if industry would agree to lower the TRI reporting level.
- *Qu.* - P. Stevens stated that entities not regulated for specific chemicals now are not reflected on the inventory. He asked if A. Stewart had any sense of the impact on the inventory.
- *Ans.* - A. Stewart responded saying that he could begin by looking at chemicals new to the list and the industries impacted. Voluntary reporting could be considered as a next step.
- *Qu.* - R. Fassbender asked if A. Stewart could produce a list of sources regulated by the Clean Air Act (for MACT) and the number regulated under NR 445 alone.
- *Ans.* - WE would need to look at MACT, the chemical and the process. We can look at some MACT sources to do this.
- C. Garber said that the interface between MACT and NR 445 would be discussed at the next meeting because there are a lot of issues.
- A. Reitter requested an overview of MACT. She asked that the residual risk analysis involving MACT be discussed.
- C. Garber suggested that study groups should be set up for the following topics and asked for more suggestions.
 - Silica
 - Benzene
 - E. Uram suggested a study group looking strictly at public health factors i.e., risk-related issues, binning issues, etc. C. Garber asked E. Uram to draw up a charge for the group and he agreed.

- P. Stevens requested an opportunity to focus on specific chemicals in the future as the sessions progress.
- At the end of the meeting, the date of Meeting 3 was rescheduled for April 27 in Madison.
- The listening session is to be rescheduled.

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